

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER



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basic imagery interpretation report

Sanyuan SAM Training Area (S)

DEPLOYED SAM FACILITIES

CHINA

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INSTALLATION OR ACTIVITY NAME				COUNTRY	
Sanyuan SAM Training Area				CH	
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETR NO.
NA	34-39-00N 108-58-30E				
MAP REFERENCE					
DMA, JOG, Series 1501, Sheet 49-5, scale 1:250,000					
LATEST IMAGERY USED			NEGATION DATE if required		
			NA		

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ABSTRACT

1. (S/D) This report describes changes and training activity at Sanyuan SAM Training Area, China, from June 1962 through March 1980 and also describes two new or modified tracking and guidance radars, the San-yuan A and San-yuan B. The report updates information contained in DIA Basic Imagery Interpretation Brief [] and satisfies all basic reporting requirements. This report has been coordinated with DIA, which has the national tasking reporting responsibility for this facility.

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2. (S/D) Sanyuan SAM Training Area is a SAM electronics training facility. This function was not confirmed until the facility was significantly upgraded by the construction of an electronics training area in 1966 and 1967. This construction was probably to accommodate increased training needs created by the commencement of CSA-1 production in 1966. Immediately after the Chinese began production of the CSA-1, the frequency of observation and numbers of launchers and tracking and guidance radars observed began to increase. This increase continued through the 1970s and into 1980.

3. (U) This report contains a location map, four annotated photographs, one table of mensural data, and one bar graph.

INTRODUCTION

4. (S/D) Sanyuan SAM Training Area is one of three SAM training areas in China.¹⁻³ It was formerly a Chinese Air Force training school and is approximately 52 kilometers north of Xian in Shaanxi Province (Figure 1).

5. (S/D) SAM activity was first identified at the facility in June 1962, when three launch positions were observed at the future location of a small CSA-1 site at the southern edge of an abandoned sod airstrip, Sanyuan Airfield []. In 1963, three additional launch positions were added and eight classroom buildings were under construction.

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6. (S/D) Between 1962 and 1966, the exact function of the facility was unclear. Because of the extensive housing/classroom area and the construction of the eight additional classrooms in 1963, it is possible that from 1962 to 1966 the facility served as a training area rather than an air defense site.

7. (TSR) In 1967, the function of the facility was confirmed as SAM electronics training when it was significantly upgraded by the construction of the electronics training area. This construction was probably to accommodate increased training needs created by the commencement of CSA-1 production in late 1966. The numbers of launchers and guidance radars observed began to increase and continued to do so through the 1970s and into 1980. Prior to the manufacture of the CSA-1, the Chinese had only six to ten battalions of SA-2 equipment, which they had obtained from the Soviets in the late 1950s.⁴

8. (S/D) Sanyuan SAM Training Area is engaged in the training of radar operators and electronics specialists.¹ The facility (Figure 2) encompasses approximately 95 hectares and consists of a housing/classroom area, an electronics training area, a storage/maintenance area, and a small CSA-1 site.

BASIC DESCRIPTION

Physical Description

Housing/Classroom Area

9. (S/D) The buildings in the housing/classroom area (Figure 3 and Table 1)^{1,5} contain most of the total facility floorspace. The approximately 47,067 square meters of floorspace devoted to housing (barracks and quarters) represent 42 percent of the total facility floorspace. The classrooms are in the center of the facility and contain approximately 8,458 square meters of floorspace. The housing/classroom area contains 17 barracks, 13 quarters, 11 classroom buildings, two administration buildings, two administration/classroom buildings, nine messhalls, one auditorium, one auditorium/gymnasium, one heating plant, and several support buildings.

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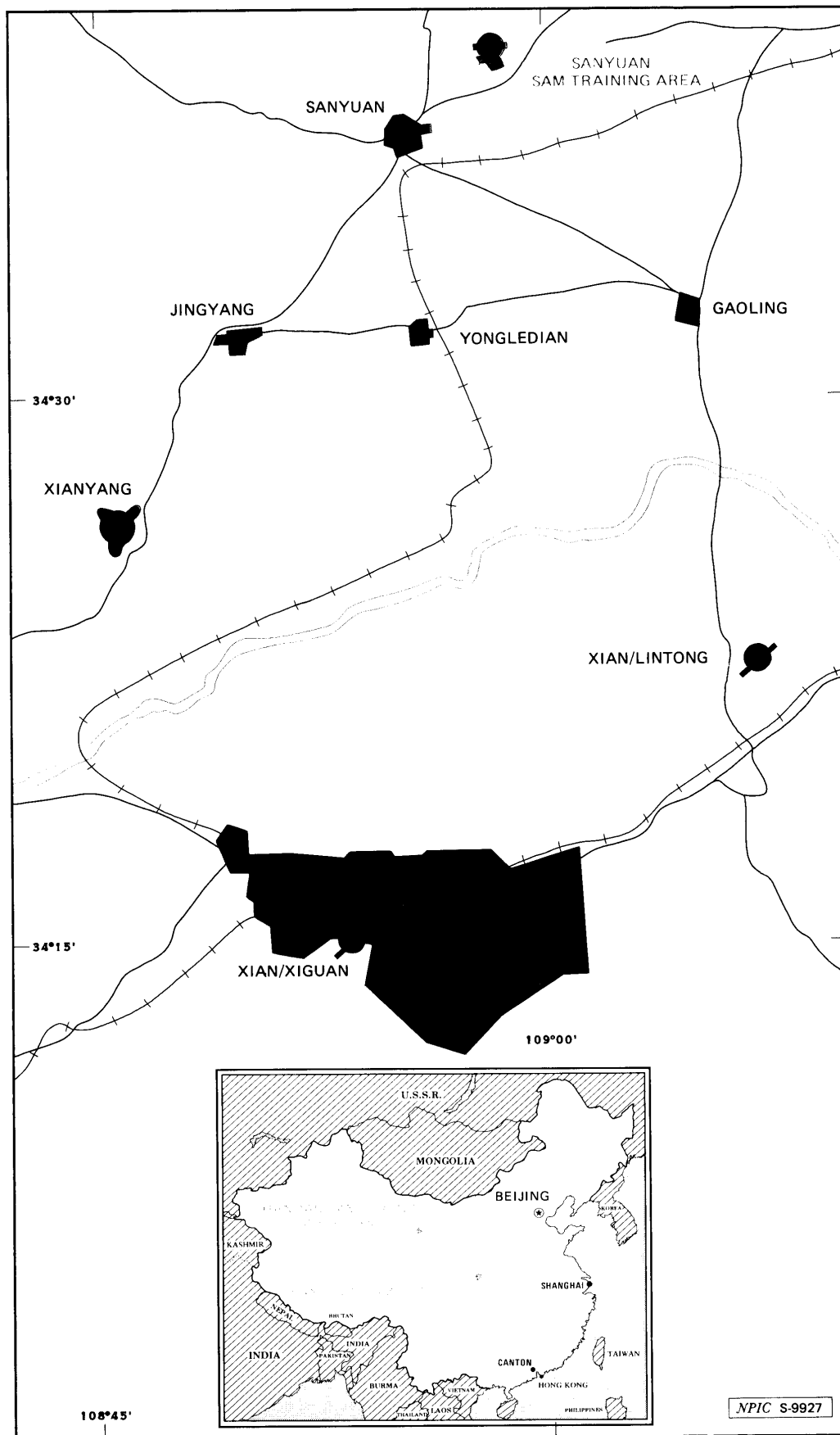


FIGURE 1. LOCATION OF SANYUAN SAM TRAINING AREA, CHINA

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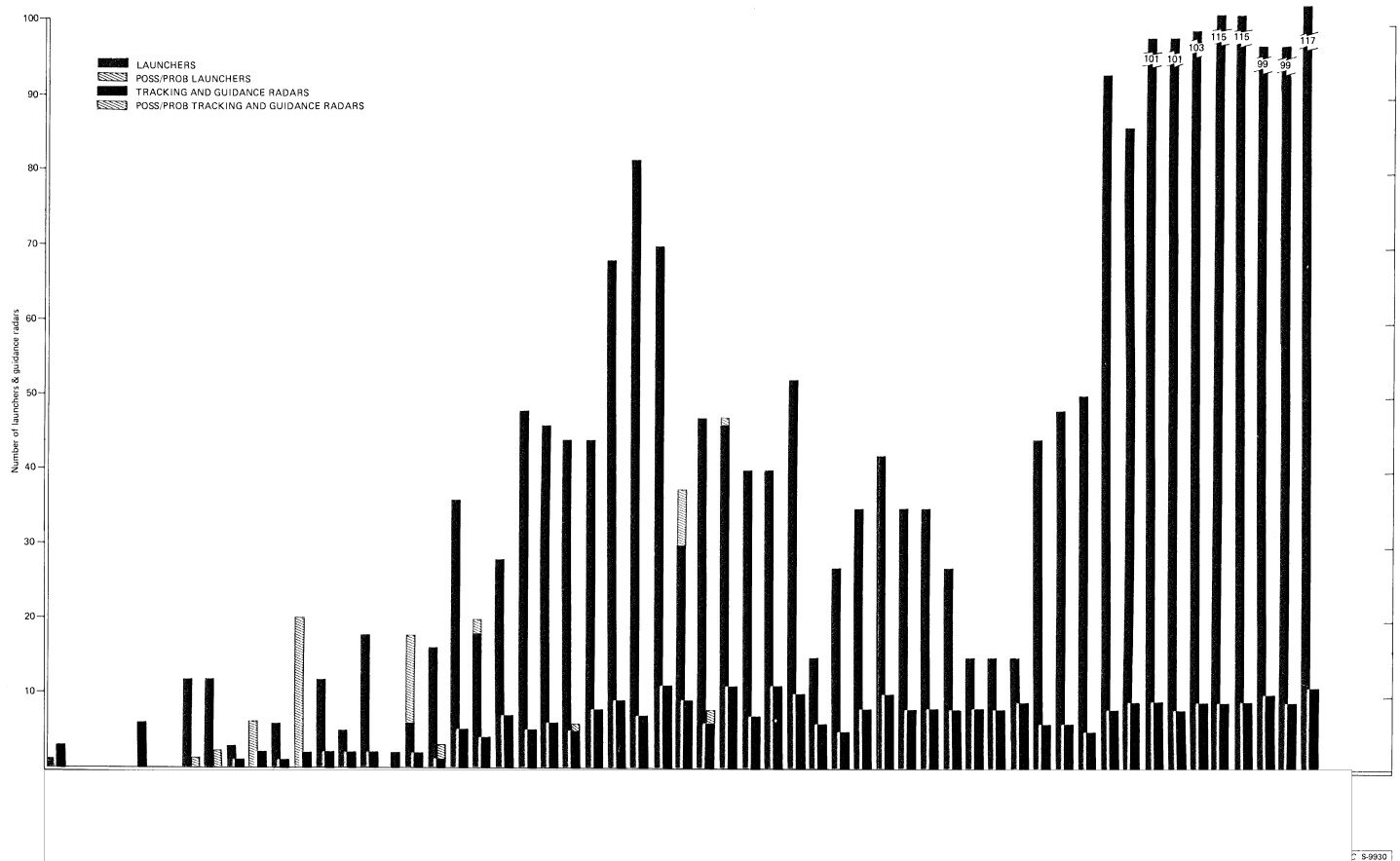


FIGURE 4. LEVELS OF TRAINING ACTIVITY AT SANYUAN SAM TRAINING AREA

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Table 1.
Sanyuan SAM Training Area, China
(Items keyed to Figure 3)

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Item	Description	Dimensions* (m)		Floorspace (sq m)	Remarks	Item	Description	Dimensions* (m)		Floorspace (sq m)	Remarks	Item	Description	Dimensions* (m)		Floorspace (sq m)	Remarks
		L	W					L	W					L	W		
1	Support bldg				KNIFE REST radar on roof	46	Storage bldg					94	Quarters				
2	Vehicle storage bldg					47	Storage bldg					95	Quarters				
3	Acquisition radar bldg					48	Storage bldg					96	Quarters				
4	Vehicle storage bldg											a					
5	Central guidance/equipment storage bldg				Completed in 1969	49	Heating plant					b					Added after 1968
6	Central guidance/equipment storage bldg**					50	Central guidance/equipment storage bldg					97	Quarters				
7	Barracks					51	Support bldg					98	Quarters				
8	Support bldg											99	Quarters				
9	Maintenance bldg				Completed in 1969	52	Heating plant					100	Barracks**				2 stories; observed complete in 1974
10	Maintenance bldg					53	Administration bldg					101	Barracks				Constructed between 1964 and 1966
11	Central guidance/equipment storage bldg					54	Support bldg					102	Barracks				Constructed between 1963 and 1966
12	Vehicle storage bldg**					55	Support bldg					103	Messhall				Completed in 1976
13	Central guidance/equipment storage bldg				2 and 3 stories	56	Auditorium					104	Storage shed				Constructed between 1963 and 1966
14	Support bldg					57	Support bldg					105	Storage shed				Constructed between 1963 and 1966
15	Support bldg					58	Garage/vehicle maintenance bldg					106	Storage shed				
16	Administration/classroom bldg					59	Support bldg					107	Storage shed				
17	Support bldg				Added after 1967	60	Storage/maintenance bldg					108	Support bldg				
18	Support bldg					61	Storage bldg					109	Support bldg				
a	Support sec					62	Storage bldg					110	Barracks				3 stories
b	Vehicle storage/ maintenance sec**					a						111	Barracks				3 stories
19	Quarters				Completed in 1974	b	Addition					112	Barracks				3 stories
20	Quarters					63	Messhall					113	Barracks				3 stories
21	Quarters					64	Classroom bldg					114	Barracks				3 stories
22	Quarters					65	Classroom bldg					115	Auditorium/gymnasium				
23	Quarters				Completed in 1974	66	Temporary central guidance/vehicle storage bldg					116	Swimming pool				
24	Quarters**					67	Support shed					117	Swimming pool				Completed in 1974
25	Quarters**					68	Central guidance/ equipment storage bldg					118	Messhall				
26	Support bldg					69	Messhall					119	Messhall				
27	Support bldg				Constructed in 1976	70	Barracks					120	Support bldg				
a						71	Classroom bldg					a					
b						72	Classroom bldg					b					
28	Acquisition radar bldg					73	Classroom bldg					121	Classroom bldg				
29	Vehicle storage bldg				2 portions of bldg added after 1967	74	Classroom bldg					122	Barracks				3 stories
30	Vehicle storage bldg					75	Classroom bldg					123	Messhall				
31	Barracks					76	Classroom bldg					124	Barracks				3 stories
32	Messhall					77	Classroom bldg					125	Support bldg				
33	Messhall				Constructed in 1975	78	Classroom bldg					126	Water tower				32.3 m tall
34	Support bldg					79	Support shed					127	Storage/support bldg				
35	Support bldg					80	POL storage bldg					128	Support bldg				
36	Support bldg					81	Support bldg					129	Support bldg				
37	Garage/vehicle maintenance bldg				Prob present in 1963	82	Storage/maintenance bldg					130	Construction support bldg				
38	Garage/vehicle maintenance bldg					83	Garage/vehicle maintenance shed					131	Construction support bldg				
39	Garage/vehicle maintenance bldg					84	Maintenance shop					132	Construction support bldg				
40	Support bldg					85	Storage shed					133	Construction support bldg				Constructed in 1977
41	Storage/maintenance bldg				3 stories	86	Support bldg					134	Construction support bldg				Ucon in late 1975
42	Support bldg					87	Barracks					135	Construction support bldg				
43	Support bldg					88	Barracks					136	Construction support bldg				
44	Support bldg					89	Barracks					137	Prob quarters ucon				Ucon in late 1975
45	Storage/maintenance bldg				Multistory	90	Barracks					138	Prob quarters ucon				Several stories
						91	Administration/ classroom bldg					139	Prob quarters ucon				Several stories
						92	Administration bldg					140	Prob quarters ucon				Several stories
						93	Messhall					Total floorspi					

*Much of the mensuration from 1962 through mid-1966 was obtained from referenced document 5.

**Mensuration from referenced document 1.

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10. (S/D) In the classrooms, the electronics trainees receive basic and intermediate training before progressing to the electronics training area. The SAM equipment observed adjacent to the classroom buildings indicates that basic training probably takes place in eight classroom buildings (items 71 through 78, Figure 3), and intermediate training probably occurs in two classroom buildings (items 64 and 65, Figure 3).

Electronics Training Area

11. (S/D) The electronics training area is within the northeastern section of the facility (Figures 2 and 3 and Table 1). It consists of four central guidance/equipment storage buildings, four vehicle storage buildings, three support buildings, and two acquisition radar buildings. The last phase of instruction probably takes place in the electronics training area. Because the facility is in a relatively populated area and the launch positions are close to each other, the last phase of instruction probably consists of simulated firings rather than live firings.

Storage/Maintenance Area

12. (S/D) The storage/maintenance area is in the southern portion of the facility (Figures 2 and 3 and Table 1). It contains four storage/maintenance buildings, four storage buildings, four storage sheds, one maintenance shop, five garage/vehicle maintenance buildings, six support buildings, one support shed, one POL storage building, and one heating plant. The total floorspace of these 27 buildings is approximately 12,057 square meters.

13. (S/D) The three garage/vehicle maintenance buildings (items 37, 38, and 39, Figure 3) are physically separated from the storage/maintenance area and function specifically to store and maintain ground support equipment. Because ground support equipment was parked at the small CSA-1 site and was rarely parked at the electronics training area, it is probable that the ground support equipment parked at the three garage/vehicle maintenance buildings was associated with the small CSA-1 site.

Small CSA-1 Site

14. (S/D) The small CSA-1 site, originally designated Sanyuan SAM Site A06-2, is 200 meters in diameter. This is approximately 100 meters smaller than a full-scale CSA-1 site. It consists of six revetted launch positions and a central guidance/equipment storage building. The small CSA-1 site was probably an operational air defense site and/or a training aid during the 1970s, when it was occupied by six CSA-1 launchers, one tracking and guidance radar, one KNIFE REST radar, and several missile transporters.

15. (S/D) In March 1980, the small CSA-1 site was unoccupied and a new, larger CSA-1 facility approximately 840 meters north, Sanyuan SAM Site A04-21 [REDACTED] was initially observed occupied by CSA-1 equipment (Figure 2). There is a possibility that the equipment at the small CSA-1 site has been moved to Sanyuan SAM Site A04-21.

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Development

16. (S/D) A substantial portion of the housing/classroom and storage/maintenance areas was present at the time of the initial observation of SAM activity in June 1962. Subsequent construction is characterized by three periods of concentrated activity: 1962 and 1963, 1966 and 1967, and 1978 through 1980.

17. (S/D) The construction activity during 1962 and 1963 indicates that the installation was an operational air defense site and/or a training area. Construction activity during 1966 and 1967 and from 1978 through 1980 was apparently in response to increased training needs.

1962 – 1963

18. (S/D) During 1962 and 1963, the small CSA-1 site was completed, and eight classroom buildings were constructed. The completion of the classroom buildings added 4,407 square meters of classroom space. The addition of the eight classroom buildings to the already extensive housing/classroom area suggests that the facility was possibly used as a SAM training area rather than an air defense site.

1966 – 1967

19. (S/D) Sanyuan SAM Training Area was greatly expanded in the eastern section and significantly upgraded by construction of the electronics training area during 1966 and 1967. Construction consisted of two central guidance/equipment storage buildings, one acquisition radar building, five quarters, one barracks, one classroom/administration building, three vehicle storage buildings, five support buildings, one messhall, and two maintenance buildings. This was an increase of approximately 11,012 square meters of floorspace in the eastern section. This construction was probably to accommodate the increased training needs created by the commencement of CSA-1 production.

20. (S/D) The construction that had taken place during this time period confirmed that the function of the facility would be for SAM training—specifically in electronics. Prior to this, SAM training had been a possibility, based on the extensive barracks/classroom area.

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1978—1980

21. (S/D) Construction from 1978 through 1980 was distributed throughout the facility. The following buildings were completed during this time period: two central guidance/equipment storage buildings, one temporary guidance/equipment storage building, one acquisition radar building, one vehicle storage building, one auditorium building, one administration building, ten support buildings, one storage building, one garage/vehicle maintenance building, one POL storage building, and four construction support buildings. This was an increase of approximately 11,372 square meters of floorspace from 1970 through 1980. The overall increase in floorspace was probably in response to heightened SAM training.

22. (S/D) Construction of a separately secured area adjacent to and west of the housing/classroom area of the facility was begun in late 1979 and was continuing in March 1980. Within this area, four multistory probable quarters (items 137 through 140, Figure 3) were in the midstage of construction. This expansion probably reflects the continuation of heightened SAM training activity.

Training

23. (S/D) The levels of training at Sanyuan SAM Training Area are reflected in the number of CSA-1 launchers and tracking and guidance radars at the facility. Figure 4 is a graphic representation of CSA-1 training activity from June 1962 through March 1980. Prior to 1967, the facility was occasionally occupied by three to six launchers and a tracking and guidance radar. It is not certain whether SAM activity before 1967 was for training or for air defense.

24. (S/D) Immediately after the Chinese began producing the CSA-1 in 1966, the frequency of observation and numbers of launchers and tracking and guidance radars began to increase. As early as June 1967, the number of launchers increased to 12.

25. (S/D) Training during the 1970s and into 1980 was marked by larger numbers of launchers and tracking and guidance radars. The number of launchers usually ranged between 28 and 48; however, there were two periods when unusually large numbers of launchers were observed. These two periods were from late 1973 to mid-1974, when up to 81 launchers were present, and from mid-1979 through March 1980, when up to 117 launchers were present.

New or Modified Radars

26. (TSR) The San-yuan A tracking and guidance radar is either a new or modified FAN SONG radar. This piece of equipment is similar to a FAN SONG radar except for a [] parabolic dish mounted at the end of an arm immediately below the command dish (Figure 5). Initially identified at the facility in October 1976, the San-yuan A has never been observed anywhere else and since October has been parked adjacent to a classroom building (item 65, Figure 3).

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27. (TSR) The San-yuan B tracking and guidance radar is a new or modified GIN SLING radar (Figure 6) with a [] parabolic dish mounted atop the horizontal trough nearest the vertical trough. The San-yuan B, identified in October 1977, has only been observed in the electronics training area at this facility.

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Analyst's Comments

28. (TSR) Sanyuan SAM Training Area is one of the three known SAM training areas in China. It functions as an electronics training facility for radar operators and electronics specialists.¹ The trainees receive classroom instruction in electronics and tracking procedures before proceeding to the electronics training sites for simulated missile firings. The electronics trainees and the SAM equipment on which they were trained proceed to Shandan SAM Training Area A ([] Figure 1)² after the completion of the last phase of instruction at the electronics training area at Sanyuan.

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29. (TSR) At Shandan SAM Training Area A, the SAM equipment and the electronics trainees are combined with the ground support equipment and missile/ground support trainees to form a battalion. (Prior to the arrival of the electronics trainees and their SAM equipment, the missile/ground support trainees receive training at Shandan SAM Training Area A.)² The newly formed battalion performs simulated missile firings at Area A before proceeding to the nearby Shandan SAM Training Area B (BE [] Figure 1),³ the third SAM training area in China, where live firings take place before the battalion deploys.

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REFERENCES

IMAGERY

(TSR) All available applicable imagery from [redacted] 25X1
[redacted] was used in the preparation of this report. 25X1

MAPS OR CHARTS

DMA, Joint Operations Graphic, Series 1501, Sheet 49-5, scale 1:250,000 (UNCLASSIFIED)

DOCUMENTS

1. DIA. [redacted] BDA-04/0004/75, *Sanyuan SAM Training Area*, Jul 75 (TOP SECRET [redacted]) 25X1
[redacted] 25X1
2. DIA. [redacted] RDA-04/0034/75, *Shan-tan SAM Training Area A*, Nov 75 (TOP SECRET [redacted]) 25X1
[redacted] 25X1
3. DIA. [redacted] BDA-04/0001/78, *Shan-tan SAM Training Area B*, May 79 (TOP SECRET [redacted]) 25X1
[redacted] 25X1
4. DIA. [redacted] *China: SAM Protection for Cities (U)*, 20 Sep 79 (TOP SECRET [redacted]) 25X1
[redacted] 25X1
5. CIA. [redacted] *SAM Training Areas in China*, Mar 68 (TOP SECRET R) 25X1
[redacted] 25X1

REQUIREMENT

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Project 200001DD

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted] Asian 25X1
Forces Division, Imagery Exploitation Group, NPIC, [redacted] 25X1

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